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ANIMAL TOILET ENCLOSURE
SPECIFICATION

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6/29/04

~~TITLE OF INVENTION~~

~~0001 The title of the invention is: Animal Toilet Enclosure. The single inventor is Clarence L. Gantt, 850 Country Drive, Barrington, IL 60010-4131, Age 75 years, Citizen of the United States of America.~~

~~CROSS-REFERENCE TO RELATED APPLICATIONS~~ *α*

THIS INVENTION CLAIMS THE BENEFIT OF PROVISIONAL
~~0002 A Preliminary Patent Application was filed in the US PTO on 07/06/2002~~
~~with the title Animal Toilet Enclosure and given the application number: 60/394,047~~
~~with license for foreign filing granted. This is indexed as Category 119/1, Animal Toilet.~~

~~No non-provisional applications have been filed.~~

PATENT APPLICATION 60/394,047 FILED ON 07/06/2002, THE ENTIRETY
~~STATEMENT REGARDING FEDERALLY SPONSORED RESEARCH OR OF WHICH IS~~
~~DEVELOPMENT~~ *HEREIN INCORPORATED BY REFERENCE*

~~0003 Not Applicable~~

~~REFERENCE TO SEQUENCE LISTING, A TABLE, OR A COMPUTER PROGRAM LISTING COMPACT DISC APPENDIX~~

~~0004 Not Applicable~~

~~BACKGROUND OF THE INVENTION~~

~~0005 The field of endeavor to which the invention pertains is Category 119/1, 119/162, Animal Toilets. In my review of the previous art in the field, the following patents were consulted:~~

U.S. Patent Documents

Patent Number	Inventor	Date
3,817,213	Chalmers	June 18, 1974
3,919,429 <i>3,949,429</i>	Hall	April 13, 1976
3,964,437	Brown	June 22, 1976
4,010,970	Campbell	May 8, 1977

U.S. Patent Documents (Continued)

Patent Number	Inventor	Date
4,050,415	Knochel et al	September 27, 1977
4,117,555	Dennis	October 3, 1978
4,185,861	Berner	May 29, 1980
4,196,693	Uversaw	April 8, 1980
4,228,554	Tumminaro	October 21, 1980
4,660,506	Nalven	April 28, 1987
5,644,928 <u>6,014,946</u>	Rymer	January 18, 2000
6,039,370	Dooley, Jr. et al	March 31, 2000
6,447,435 <u>6,457,435</u>	Bridges	October 1, 2002
6,554,335	Kelly, et al	April 29, 2003
✓ <u>6,561,131</u>	Schwartz	May 13, 2003
6,568,348	Bedard	May 27, 2003

0006 After a careful review of the listed patents it appears possible to group them under a few headings relative to their design and the difficulties and problems that might arise if they were in wide usage by the public.

0007 The first grouping could be: Use of the Same Device By Both Animals and Humans. This is exemplified by the patents of Hall, 1976 and Rymer, 2000. These patents use a modified toilet seat that expands and contracts enough to manually arrange it as a seat for use by both humans and animals. Many humans would shy away from such use and it is very difficult to train an animal to void excreta while sitting or standing on a toilet stool seat.

0008 The second grouping could be: Use of a Funnel Shaped Floor or Platform. This is presented in patents by Brown, 1976 and by Tumminaro, 1980. The sloping floor, while stable, creates a training problem for use by any animal and in the case of Brown requires that a human push a button to initiate cleaning action.

0009 The third grouping could be: Unstable Floor or Platform In Order to Initiate Some Mechanical Action By Downward Movement of the Floor. This is presented in patents by Knochel et al, 1977, Dennis, 1978, Unversaw, 1980, and Nalvern, 1987. Most animals have an almost reflex withdrawal as soon as they put their body weight down on a surface and it begins to move downward which would make training animals for this type of animal toilet very difficult.

0010 The fourth grouping could be: The Use of Drain Holes for Removal of Excreta in a Flat Stable Board. This is exemplified by the patent of Bridges, 2002. Although it has the use of electronics to assist in the activation of cleaning of the flat stable board, there is no good mechanism for the cleaning of the underside of the board. It is removable to assist in this. The board also contains permanent open holes to allow the excreta to pass through. These holes are open while the animal is in the unit and constitute a hazard for harm to the legs of the animal.

0011 The fifth group is probably not strictly an animal toilet so that it could be called: Catch Pouch On A Pole Or A Pooper Bag. Both Dooley, 2000, and Kelly, 2003, present this concept very well in their patents. However, this system is not automatic and requires a great deal of human intervention.

0012 The sixth group could be entitled: The Complex Litter Box. This concept is presented well in the patents of Schwartz, 2003, and Bedard, 2003. However, the use is limited to cats and involves special clumpable litter wherein the urine is removed as clumps of congealed litter along with fecal material by mechanical means such as rakes.

~~BRIEF SUMMARY OF THE INVENTION~~

~~SUMMARY OF ANIMAL TOILET ENCLOSURE~~

0013 Although several patents have been issued for animal toilet inventions over many years, none have successfully solved the problem by presenting an acceptable method to the general public for rapid, simple economical disposal of dog and cat

excreta. There has been no change in the handling of dog and cat excreta as compared to that of human excreta which has progressed from outdoor toilets to modern indoor toilets in bathrooms of first world people. A parallel development has been the invention of modern day washers and dryers for clothes and for dishes.

BRIEF SUMMARY OF THE INVENTION

0014 To solve this major problem, I have invented an animal toilet that takes into account the natural instincts of dogs and cats, is electronically controlled and totally automated which closes, flushes, cleans semi-sterilizes and dries itself while preventing entry of an animal before it is ready for use again.

→ (INSERT ABSTRACT)

0015 The enclosure which is presented in two basic models with two separate modes of rotation and stabilization of its floorboards, looks grossly from the outside like a large appliance such as an automatic floor-model dishwasher or like a human shower stall if it has been built into the substance of a building. A simplified training model, which is manual in its operation, is also presented.

0016 The invention in its simplest concept is a free standing rectangular enclosure with a large free space inside, a top, four supporting vertical walls, a horizontally mobile entry/exit door, and a firm, stable, complete flat floor in the horizontal plane composed of independent boards that can be rotated either actively or passively automatically for cleaning and stabilized automatically afterward.

REPLACEMENT
OF 'SAID' WITH 'THE'

0017 This allows an animal a space large enough to walk about before and after voiding excreta. There is no having to climb up onto a small area and sitting or standing there while voiding excreta. This floor is about level with the floor in the building. The firm stable floor creates no insecurity in any animal that uses ~~said~~ toilet enclosure. It has been noticed in the past that many dogs like the security of a cage. The resemblance of the toilet enclosure to a cage is expected to aid in the training of animals to use said animal toilet.

0018 The presence of the animal is detected by electronic sensors as it enters the enclosure and turns on a soft overhead light. As said animal leaves the enclosure, this is

detected by said electronic sensors connected to a pre-programmed electric activation component which activates an electric motor to close said entry/exit door. If the active mode of rotating and stabilizing said floorboards is used, ~~Said~~ electronic circuitry activates an electromagnetic solenoid to retract its bar from an opening in one of several solid meshing gears connected directly to said floorboards. Said electric activation component starts a ^{SPUR}~~second~~ electric motor connected by meshing gears to rotate or oscillate said floorboards as large volumes of water pour down from overhead and wall mounted shower heads. These volumes of water can be supplemented by water from a classical water closet if this is desired and the unit is built into the substance of a building.

0019 If the passive mode of rotating and stabilizing of said floorboards is used, pins, entirely different from the bars of the solenoids, are used to stabilize said floorboards. Each one of these said different pins passes through one vertical supporting wall and then into the end of a floorboard running parallel to the axles of said floorboards. These pins are moved outward by a third electric motor connected to the electric activation system of the enclosure, allowing the said floorboards to rotate freely.

0020 The excreta is washed down into a flattened bowl underneath the rotating or oscillating said floorboards. This bowl connects at its lowest point to a sewer outlet with the classic configuration for siphon flush action or to a small garbage disposal unit or similar grinder mechanism in-line to a sewer connection. Preset variable electronic controls operate the switching of the entire operation including the volume of water used after the animal leaves.

0021 Closing of said entry/exit door and said cleaning action starts only after the sensors indicate that the animal has left the unit. The washing and flushing of the bowl is augmented by streams of water from the underside of the rim of the bowl if the unit is built into the substance of the building.

0022 In the active rotating and stabilizing mode, after the floorboards are cleaned ultra violet and heat lamps located overhead semi-sterilize and dry said boards

after they return to their flat position which is maintained stable by the bar of at least one solenoid under pressure of its self contained spring passing through at least one opening in the supporting housing of the said gears and an opening in the body of one of said gears.

0023 In the passive mode of operation, the overhead water is turned off and the floorboards return to their flat position either by:

- a. Unbalanced rotation created by the axle being slightly off center of the long axis of rotation of said board, resulting in said board resting on a fixed pin projecting from the side of said vertical support board slightly below the level of said board's axle. The rotation of said boards operating in this mode is limited to an oscillation of about 90 degrees.
- b. Balanced free rotation of said floorboards through 360 degrees, which align themselves in a flat position when the pressure of the water stops turning them. This is accomplished by having stable magnetic strips on the edges of said boards.
- c. If the momentum of said rotating floorboards is too great to allow easy alignment in the flat position for stabilization, additional attraction of the edges of ~~said~~ boards is created by the addition of more permanent magnets into the substance of said edges and ends of said floorboards. The said magnets in the ends of said floorboards will face similarly aligned permanent magnets in the substance of said vertical supporting boards.

0024 After ~~said~~ floorboards are returned to their flat position the said different pins are reinserted into said openings for said different pins by activation of said motor that produced the withdrawal of said different pins. These said different pins all respond as a group because they are all firmly attached to a board that is moved forward and backward by said motor.

0025 After ~~said~~ floorboards are stabilized, semi-sterilized and dry by overhead ultraviolet and heat lamps, said entry/exit door is opened by said electric circuitry and motor that closed it as the animal left the toilet.

0026 ^{The}~~Said~~ enclosure, which is now clean and dry with an open door, is ready again for use as an animal toilet.

0027 There is one additional feature only present in the exclusive cat toilet that is not present in other modes. This is the depositing of a controlled amount of water-soluble cat litter on the dry surface of said floorboards from an overhead storage bin prior to the opening of the said entry/exit door. This feature is controlled by said electronic-electric control system.

0028 The enclosure can also be built as a freestanding unit in a very small building such as in a park. It must have the proper water and sewer connections regardless of its location.

0029 The size of the enclosure can be extremely variable dependent on the size and weight of the animals that will use it. A feline unit can be built or placed on top of a canine unit.

0030 A very inexpensive training animal toilet has been invented for use by animal breeders and trainers. This animal unit lacks the automatic electronic features. Operation is manual except when a garbage disposal is used in-line to the sewer. It must be connected to a sewer system and washed with a hand held water hose.

0031 All of the electronic equipment, motors, water valves and other plumbing used in the invention are of common commercial types. The various parts of the enclosure may be made of metal, wood, plastic, ceramic or vitreous or similar common materials.

0032 The most unique components of the invention in relation to canine and feline toilets are:

- a. The floorboards produce a flat firm floor on which an animal can walk about before and after voiding excreta. Said floorboards are then rotated by either a

passive or active mechanism and washed on all areas by overhead streams of water after an entry/exit door is closed preventing an animal from entering the toilet while it is cleaning itself. Said washing water carries said excreta into a flush-type bowl beneath said floor which, in turn, is connected to:

- b. A garbage disposal or similar type grinding apparatus in line to an ordinary sewer system with a common one-way water valve in said line after the garage disposal.

0033 Except for the most unique components, the invention resides in the total combination of all its parts put together in a unique manner to allow the making and claiming of a new practical animal toilet invention that can readily solve the age old problem of the rapid disposition of canine and feline voided excreta.

BRIEF DESCRIPTION OF THE SEVERAL VIEWS OF THE DRAWING

Figure 1. Outside View of Animal Toilet in Preferred Mode

- 20 Hinged Top
- 22 Floorboards
- 24 Sliding Door

Figure 2. Top Right View of Rear-Emptying Bottom Bowl

- 26 Rear-Emptying Bottom Bowl
- 28 End Wall of Bottom
- 30 Side Wall of Bottom
- 32 Sewer Conduit
- 34 Garbage Disposal
- 36 Outlet to Sewer Line
- 38 Motor of Garbage Disposal
- 40 One Way Valve In-Line to Sewer
- 42 Electric Wire With Plug

*MOVE TO
DETAILED*

Figure 3. Cross Section of Bottom With Center-Emptying Bowl

- DETAILED*
- 44 Side Wall of Top Cover
 - 46 Side Floorboard Wall
 - 47 Center-Emptying Bowl
 - 48 Floorboard Axle
 - 50 Upper Underneath Pin
 - 52 Lower Underneath Pin

Figure 4. Floorboards With Supporting Sides and Ends

- DETAILED*
- 54 Space Between Floorboards
 - 56 Connecting End Board

Figure 5. Top View of Floorboards with File Gears and Motor for Passive Oscillation of Floorboards Mode

- DETAILED*
- 58 Set Screw
 - 60 Different Pin
 - 62 Pinboard Stabilizing Pin
 - 64 Blank
 - 66 Blank
 - 68 Moveable Pinboard
 - 70 Plastic or Metal Sleeve
 - 72 File Gear Support with Screws
 - 74 File Gear
 - 76 Round Spur Gear
 - 78 Axle of Motor
 - 80 Electric Wire with Male Plug
 - 82 Motor Stabilizing Strap
 - 84 Reversible Electric Motor with Axle at Both Ends

Figure 6. Sectional End View of Openings Through Connecting End Board for Three Floorboards

Figure 7. Partial Side View of Spur Gears with Horizontal Side Motor in Active Full Rotational Mode

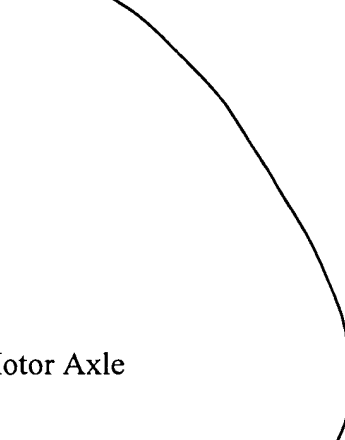
- DETAIL*
- 86Sloping Groove for Solenoid Pin
 - 88Opening for Solenoid Pin
 - 90Solenoid
 - 92Solenoid Support
 - 94~~Small~~ ^{SPUR} Electric Motor
 - 96Axle of Small Electric Motor
 - 98Small Spur Gear on Small Electric Motor Axle
 - 100Spur Gear Fixed to Floorboard Axle
- 

Figure 8. Partial Top View of Spur Gears Held in Gear Group Casing

- DETAIL*
- 102Modified Floorboard Axle with Female Coupling on Outer End
 - 104Modified Floorboard Axle with Male Coupling on Inner End
 - 106Sleeve of Plastic or Brass
 - 108Worm Gear of Vertically Placed Motor Not Shown
 - 110Solenoid Pin
 - 112Solenoid Spring
 - 114Solenoid Electromagnet
 - 116Long Supporting and Spacing Screw
 - 118Nut on End of Long Supporting and Spacing Screw
 - 120Spur Gear
 - 122Spacing Sleeve Over Long Supporting and Spacing Screw

DETAILED DESCRIPTION OF THE INVENTION
STRUCTURAL ELEMENTS OF THE INVENTION ARE LABELED AS

0034 The invention is a freestanding enclosure with a rectangular shape. It has Follows:
a large free space inside, a top 20, four supporting vertical walls, a horizontally mobile entry/exit door 24, and a firm stable floor of independent floorboards 22, with an open space of about one quarter of an inch between said floorboards in the horizontal plane 54, with rotational horizontal axles at each end of said floorboards that are supported by openings in the lower portion of two oppositely placed said vertical walls.

0035 ~~Said~~ invention is presented in two separate modes either: 1) a pre-built mode that looks like a floor model electric dishwasher with a front see-through window or 2) the mode in which the various separate parts of said animal toilet are built into the substance of a building. Each of said two modes have the option of using either an active or passive method for rotation of said floorboards. A simplified manually operated training mode based on the plan of the basic automatic mode is also presented.

0036 All of the said animal toilets with the exception of said manual training mode have overhead infrared motion sensors connected to an electric circuit that automatically controls all the events in the enclosure unless interrupted by a manual switch controlled by a human. Said toilet also has several other safety devices, which are listed separately.

0037 ~~Said~~ enclosure has three sections that fit snugly on top of each other in the vertical plane. They are the Bottom, the Floorboards With Supporting and Attached Devices and the Cover. They are best described separately.

~~The~~ Bottom ~~is~~ is the lowest section. It has two supporting sides 30, and two supporting ends 28, a bowl with either a rear outlet 26, or a central area outlet 47 into which excreta is washed and collected. Said outlet is at the lowest point of said bowl and connects to a conduit water trap 32 in the centrally placed outlet only. Said conduit 32, connects to a small in line garbage disposal 34, or similar grinding device with an electric motor 38. The outlet of the garbage disposal 36, has an in line one-way water valve 40, just beyond said outlet. An electric wire

with a male plug must be connected to the central electronic-electric control system for operation. Figure three illustrates how the three sections sit on top of each other. The bottom walls 30, fit snugly under the floorboard walls 46, while the cover wall 44, sits on top of said floorboard walls.


~~2.~~ ¹³ Floorboards With Supporting and Attached Devices: ~~This section~~ is quite unique in the field of animal toilets and the most difficult to describe. Said floorboards 22, shown in Figure 4 with a small space of approximately one-quarter of an inch between them 54. Said floorboards are in the horizontal plane and are supported by a horizontal axle 48 at each end. Said axle traverses an opening in an adjacent supporting end wall 56. The openings for said axles 58 in the supporting connecting end board 56, are shown in Figure 6. There is a sleeve of plastic or metal in said connecting wall openings 58, to allow easy rotation of the axles within said opening in said wall.

0038 The mechanism chosen for the rotation of said floorboards determines the attached devices, which will be used to accomplish said rotation.

0039 In the active method of rotation of said floorboards, a series of round spur gears are supported by a gear group casing as shown in Figure 8. The said floorboards are kept level and secure by the bar or pin 110, of a solenoid 90, attached to the supporting structures of said gears. This pin 110, is pushed forward by a rather strong spring 112, inside of said solenoid. Said pin or bar traverses said supporting structures of said gears and passes through an opening in the solid wheel portion of one of said gears. There is a slanting groove 86 on each side of said opening 88, in said solid spur gear for ease of placing the solenoid bar into the opening.

0040 As an animal enters the enclosure, said animal's presence is immediately detected by said sensors, which activate an electric circuit to turn on a soft light. When said animal leaves said enclosure said sensors detect this and activate a circuit to close said entry/exit door 24, and start a series of timed events that are dependent on whether said active or passive method of floorboard rotation is chosen.

0041 When ~~said~~ active method of rotating said floorboards is used, said electric circuitry activates an electromagnetic solenoid 90, the bar or pin 110, of which holds the said floorboards firmly in place by passing through the supporting structure 92 of said solenoid and through an opening in the solid wheel portion of one of the gears 86, and 88 by a strong spring 112, within said solenoid when said solenoid is not activated. Upon activation of said solenoid's electromagnet 114, said solenoid actively pulls said pin or bar out of the opening of the said solid wheel spur gear 120. This action allows said gear to turn in response to ^{SPUR} ~~an~~ electric motor 94, the axle 96, of which has a small spur gear 98, firmly attached to said axle. The said axle 96, of said motor 94, is placed in the horizontal plane parallel to said axles of said floorboards so that the small spur gear 98, meshes properly with said solid spur gears.

0042  ~~Said~~ motor that turns said spur gears can be placed in different locations around said spur gears as demonstrated in figure 8 where the upper end of a worm gear 108 of said motor, which is not shown, connects with a compatible configuration of the spur gears 100. This group of spur gears 100, is supported by a housing referred to as gear group casing, figure 8.

0043 The axles 104 of the solid spur gears are securely connected to said gears at one end. They are modified before entering said connecting end board. Said axle is separated into a male 104, and a female 102, coupling parts for easy separation of said gears and their said housing from said connecting end board 56, by removal of long supporting and spacing screws 116, and nuts 118. The length of spacing sleeves 122, over the long supporting and spacing screw 116, controls the meshing of said male and female coupling. The female part of said axle 104, passes through a plastic or metal sleeve 106, in said connecting end board 56, and is held securely in the end of said floorboards 22, by set screws 58.

0044 When the passive mode of rotation is used, the Floorboards With Supporting and Attached Devices section is different from that used with the active mode of rotation. This is the only section of the invention that changes with said different

modes of rotation, except for slight changes in the wiring from the electric controls to the various motors.

0045 ~~Said~~ ^{the} floorboards 22, ~~shown in figure 4,~~ ^L are in the horizontal plane and are supported by an axle 48, at each end that traverses an opening in the adjacent supporting end wall 56. The openings for said axles 58, in the supporting connecting end board 56, are shown in figure 6. There is a collar or sleeve of plastic or metal in said connecting wall opening to allow easy rotation of the axles within said wall 56. In the mode of said limited rotation of said floorboards there are two short pins, called underneath pin upper 50 and underneath pin lower 52, that are anchored within the connecting end board. Said pins project toward the inside of the enclosure and limit the rotation of said floorboards. The upper pin 50, is located in a plane slightly below and parallel to said axle 58, so as to prevent said floorboard from rotating past its level position on the side that said pin is located. The underneath pin lower 52, is located farther down on the board in the same vertical plane as said axle so as to limit rotation of said floorboard in the opposite direction resulting in said board being erect on its edge much of the time during the washing by water from overhead shower heads. The actual oscillation range of said floorboard in this operating mode is approximately 80 degrees.

0046 ~~Said~~ ^{the} floorboards 22, are held in a flat stabilized position in this mode by different pins 60, than the pins or axles used elsewhere in the invention as shown best in figure 5. Said pins 60, traverse said supporting end wall 56, with one end of each said pins pointing toward the center of the enclosure entering into an opening at one end of said floorboard and running parallel to the axis of said board's axle 48, to secure said floorboard firmly in the horizontal plane. A slight depression, which is not shown, is present around the entrance of the opening into said floorboard for said pin to help guide said pin into said opening in the end of said floorboard. Each floorboard is held firmly by at least one said pin 60. Two or more pins may be used for each floorboard if said enclosure is very large and said floorboards are very heavy. Said pins 60, are all securely mounted on a board, the pinboard, 68. Said pinboard is located outside of the connecting wallboard 56, and is exactly parallel to said connecting wallboard. Said pinboard is supported by four pinboard stabilizing pins 62, which are firmly embedded in the side

walls 46, of the enclosure. Said pinboard slides along said stabilizing pins 62, with the assistance of smooth plastic or metal sleeves in the openings for the said pins in said pinboard 70. Said stabilizing pins 62, have a metal head or cap to prevent said pinboard from sliding off the end of said stabilizing pins. There are two long thin pieces of metal or hard plastic that are firmly attached by screws 72, to the outside surface of said connecting wall 68. Said long pieces glide through openings in said pinboard assisted by smooth sleeves of plastic or metal 70. Said long pieces have spurs on their upper surface and function as a file gear 74 when meshed with round spur gears 76, on the axle 78, of a ~~small~~ reversible electric motor 84, secured to said pinboard by encircling straps 82. As said motor turns, said pinboard pushes said different pins into the ends of said floorboards to stabilize said floorboards or when said motor is reversed and moving in the opposite direction to remove said pins from the ends of said floorboards, but not from the connecting end wall 65 to allow free oscillation of said floorboards between upper underneath pin 50, and lower underneath pin 52, in response to the varied directional pressure of streams of water coming down from carefully pre-directed overhead shower heads.

0047 The ~~said~~ freely oscillating floorboards cannot be securely stabilized by said pins connected to said pinboard until said floorboards have come to rest in a flat position in the horizontal plane after said overhead water is turned off. To accomplish this, one or combinations of three techniques are used:

1. The first has the floorboards axles placed slightly off center away from the upper underneath pin to make that side of said board slightly longer and therefore slightly heavier than the opposite side. Since the floorboards only rotate through 80 degrees, the heavier side never quite reaches the vertical position so always has a tendency to fall down toward the upper underneath pin.
2. The second uses a strip of permanent magnetic tape on the edges of each said floorboard to increase the tendency of said boards to line up parallel to each other.
3. The third uses permanent magnets imbedded in the edges of said floorboards. This technique can be extended to the ends of said floorboards, if permanent magnets are placed in corresponding horizontal rows in the floorboard supporting ends.

3. ~~The~~ Cover. ~~The cover~~ is composed of four walls, one of which has a small entry/exit door, and a top with two separate levels. The upper said level is the very top of the enclosure shown in fig 1, number 30. It has hinges near the rear so that it may be lifted to get to the next level lower, which is not shown. Said lower level is located a few inches below the said upper level making a compartment between the two said levels. Said compartment contains all of the electrical connections for said sensors and lamps, said electrical control center, several off-on switches and said electrically controlled water valves connected to the building water supply and said shower heads which are mounted on said lower level of said cover. There are several small openings present in said lower level to allow any water leaks to drain into the open chamber below in order to keep all electric equipment absolutely dry. The opening of said upper level allows convenient access to the controlling parts of said toilet. The walls of the cover are essentially straight in the vertical plane and form a cover for said other sections of said toilet. They usually extend to the floor level so as to cover all exposed mechanical parts of said toilet. They are separate sheets of metal or plastic anchored with screws to each other to make a water tight seal yet allow easy access to the parts covered by them. Said entry/exit door is located in said front wall. Said door moves from side to side by means of an electric motor mounted on the outside wall with its axle passing through said wall. A round spur gear with very small spurs is mounted on said axle. Said spur gear meshes with compatible spurs which appear as notches on the under edge of said sliding door. This allows said sliding door to be opened and closed by said round spur gear and yet allows any slight object that the door might encounter to hold the door in place while the gears spin on each other because of the small spurs and the fact that said sliding door is very light and easily displaced upward if said door encounters significant resistance while moving.

PREFERRED EMBODIMENT

BEST MODE FOR THE INVENTION

preferred embodiment

0048 The ~~best mode~~ contemplated for the invention is one that looks like any large appliance such as a floor model electric dishwasher. It uses the passive mode of oscillation for the floorboards through about an 80-degree range while washing its said floorboards. The bowl beneath is connected to a garbage disposal with a one-way valve in line to the sewer. The enclosure is connected to a 110 volt alternating current outlet, to a cold water connection in a building, and to an air exhaust system of a building or smaller structure. It has the standard electronic-electric sensor and activation mechanisms in place.

0049 The size of the enclosure and its parts will depend on the space available and the size of the animals that will use it as a toilet facility. There are no specific limitations on the size of the animal toilet, as it can be built to any practical size.

0050 The enclosure has a rectangular shape with a large free space inside, a top 20, four vertical supporting walls, a horizontally mobile entry/exit door 24, and a firm stable floor of independent floorboards 22, with an open space of about one quarter of an inch between said floorboards in the horizontal plane 54. There are rotational axles 48, in the horizontal plane at each end of said floorboards supported by openings in two oppositely placed vertical end walls, one of which is designated for easy reference as connecting end board 56.

0051 The enclosure has three sections that fit snugly on top of each other in the vertical plane. They are the Bottom, the Floorboards, and the Cover. They are best described separately:

1. Bottom

~~This~~ is the lowest section. It has two supporting sides 30, and two supporting ends 28, a bowl with either a rear outlet 26 or a central outlet 47, into which excreta is washed and collected. Said outlet is at the lowest point of said bowl and connects to a conduit water trap 32 at its lowest level in the center outlet model only. Either way, the conduit 32, connects to a small in-line garbage disposal unit 34, or similar

grinding device with an electric motor 38. The outlet of the garbage disposal to the sewer 36, has an in-line one way water valve 40, just beyond said outlet. An electric wire with a male plug 42, must be connected to the central electronic/ electric control system for operation.

Figure 3 illustrates how the three sections sit on top of each other. The bottom walls 30, fit snugly under the floorboard walls 46, while the cover wall 44, sits on top of the floorboard walls. This figure also shows the floorboard axles 48, and a said floorboard 22, turned on edge. The floorboard rotation controlling pins 50, and 52, which are underneath said board 22, are also shown.

~~2.14~~ Floorboards

~~Said floorboards~~ with their supporting and operating parts are extremely important components of the invention. Said floorboards 22, shown in figure 4, are in the horizontal plane and are supported by an axle 48, at each end that traverses an opening in the adjacent supporting end wall 56. The openings for said axles 58, in the supporting connecting end board 56, are shown in figure 6. There is a collar or sleeve of plastic or metal in said connecting wall opening to allow easy rotation of the axles within said wall 56. In the mode of said limited rotation of said floorboards, there are two short pins, called underneath pin upper 50, and underneath pin lower 52, that are anchored within the connecting end board. Said pins project toward the inside of the enclosure and limit the rotation of said floorboards. The upper pin 50, is located in a plane slightly below and parallel to said axle 58, so as to prevent said floorboard from rotating past its level position on the side that said pin is located. The underneath pin lower 52, is located farther down on the board in the same vertical plane as said axle so as to limit rotation of said floorboard in the opposite direction, resulting in said board being erect on its edge much of the time during the washing by water from overhead shower heads. The actual oscillation range of said floorboard in this operating mode is approximately 80 degrees.

Said floorboards 22, are held in a flat stabilized position in this mode by different pins 60, than the pins or axles used elsewhere in the invention as shown best in figure-5. Said pins 60, traverse said supporting end wall 56, with one end of each said pins pointing toward the center of the enclosure entering into an opening at one end of said floorboard and running parallel to the axis of said board's axle 48, to secure said floorboard firmly in the horizontal plane. A slight depression, which is not shown, is present around the entrance of the opening into said floorboard for said pin to help guide said pin into said opening in the end of said floorboard. Each floorboard is held firmly by at least one said pin 60. Two or more pins may be used for each floorboard, if said enclosure is very large, and said floorboards are very heavy. Said pins 60, are all securely mounted on a board, the pinboard, 68. Said pinboard is located outside of the connecting wallboard 56, and is exactly parallel to said connecting wallboard. Said pinboard is supported by four pinboard stabilizing pins 62, which are firmly embedded in the side walls 46, of the enclosure. Said pinboard slides along said stabilizing pins 62, with the assistance of smooth plastic or metal sleeve in the openings for the said pins in said pinboard 70. Said stabilizing pins 62 have a metal head or cap to prevent said pinboard from sliding off the end of said stabilizing pins. There are two long thin pieces of metal or hard plastic that are firmly attached by screws 72, to the outside surface of said connecting wall 68. Said long pieces glide through openings in said pinboard assisted by smooth sleeves of plastic or metal 70. Said long pieces have spurs on their upper surface and function as a file gear 74, when meshed with round spur gears 76, on the axle 78, of a ^{reversible} ~~small~~ electric motor 84, secured to said pinboard by encircling straps 82. As said motor turns, said pinboard pushes said different pins into the ends of said floorboards to stabilize said floorboards or when said motor is reversed and moving in the opposite direction to remove said pins from the ends of said floorboards but not from the connecting end wall 65, to allow free oscillation of said floorboards between upper underneath pin 50, and lower underneath pin 52 in response to the varied directional pressure of streams of water coming down from carefully pre-directed overhead shower heads.

The said freely oscillating floorboards cannot be securely stabilized by said pins connected to said pinboard until said floorboards have come to rest in a flat position in the horizontal plane after said overhead water is turned off. To accomplish this, one or combinations of three techniques are used:

- 1) The first has the floorboards axles placed slightly off center away from the upper underneath pin to make that side of said board slightly longer and therefore slightly heavier than the opposite side. Since the floorboards only rotate through 80 degrees, the heavier side never quite reaches the vertical position so always has a tendency to fall down toward the upper underneath pin.
- 2) The second uses a strip of permanent magnetic tape on the edges of each said floorboard to increase the tendency of said boards to line up parallel to each other.
- 3) The third uses permanent magnets imbedded in the edges of said floorboards. This technique can be extended to the ends of said floorboards, if permanent magnets are placed in corresponding horizontal rows in the floorboard supporting end.

4. ~~The~~ Cover

~~The cover~~ is composed of four walls, one of which has a small entry/exit door, and a top with two separate levels. The upper said level is the very top of the enclosure shown in fig 1, number 20. It has hinges near the rear so that it may be lifted to get to the next level lower, which is not shown. Said lower level is located a few inches below the said upper level making a compartment between the two said levels. Said compartment contains all of the electrical connections for said sensors and lamps, said electrical control center, several off-on switches and said electrically controlled water valves connected to the building water supply and said shower heads which are mounted on said lower level of said cover. There are several small openings present in said lower level to allow any water leaks to drain into the open chamber below in order to keep all electric equipment absolutely dry. The opening of said upper level allows convenient

access to the controlling parts of said toilet. The walls of the cover are essentially straight in the vertical plane and form a cover for said other sections of said toilet. They usually extend to the floor level so as to cover all exposed mechanical parts of said toilet. They are separate sheets of metal or plastic anchored with screws to each other to make a water tight seal yet allow easy access to the parts covered by them. Said entry/exit door is located in said front wall. Said door moves from side to side by means of an electric motor mounted on the outside wall with its axle passing through said wall. A round spur gear with very small spurs is mounted on said axle. Said spur gear meshes with compatible spurs which appear as notches on the under edge of said sliding door. This allows said sliding door to be opened and closed by said round spur gear and yet also allows any slight object that the door might encounter to hold the door in place while the gears spin on each other because of the small spurs and the fact that said sliding door is very light and easily displaced upward if said door encounters significant resistance while moving.

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ABSTRACT OF THE DISCLOSURE

0052 ~~The invention solves a problem: the immediate, permanent disposal of pet excreta. Humans have come from out-houses to indoor plumbing; from scrub boards and clotheslines to modern washers and dryers. During this time there has been no significant changes in the handling of pet excreta.~~

~~0053 This pet toilet is an enclosure that looks like a floor-model dish washer with a small clear front door. Said toilet is connected to the electricity, water supply and sewer of any building. All the functions are automatic. Said toilet can also be installed into a building as separate parts which then looks like a human shower stall. Said toilet has motion-heat sensors to detect a pet leaving the enclosure after voiding excreta onto clean, stable floorboards. Said sensors are connected to an electric circuit that causes a pre-timed series of events, only after said pet has left the unit. This is done by electric motors, electric water valves, and by ultraviolet and heat lamps.~~

~~0054 Said circuit causes release of said floorboards so that they are rotated in an active mode wherein an electric motor is connected to said floorboards by spur-gears. Said floorboards, after they are released, can be passively rotated by streams of water from showerheads in the ceiling of said toilet. Said water cleans said floorboards, washing excreta down into a round or flattened funned shaped bowl connected to a sewer outlet. The sewerage outflow is connected to either a siphon flush or to a garbage disposal or, similar grinding unit, which is connected to a one-way water valve and then to a sewer.~~

~~0055 After said unit has cleaned itself, said floorboards are aligned in the horizontal plane by pins that that are inserted into their end; or by one or more bars of electromagnets being inserted into openings in the wheel part of said spur-gears. Said electric circuit turns on overhead ultraviolet and heat lamps to semi-sterilize and dry said floorboards. After a drying time, said circuitry turns off said overhead lamps and opens said door so that the toilet may be used again. In units for cats, water-soluble kitty-litter is scattered on the floor before the door opens.~~

0056 A totally manual mode for animal trainers is also described.

ABSTRACT OF THE DISCLOSURE

The animal toilet enclosure has a bottom section removably coupled to a floorboard section, a cover section removably coupled to the floorboard section, and a means for controlling the enclosure. The bottom section has a bowl with an outlet in fluid communication with a grinding device and a sewer. The floorboard section has multiple floorboards each coupled with a floorboard axle having either an active or means for rotating. The cover section has a sliding door, a hinged top, multiple vertical walls, and at least one shower head in fluid communication with a water supply. The means for controlling the enclosure has sensors and a pre-programmed activation circuit.